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LISTING OF CLAIMS

22. (Previously presented) Nucleic acid coding for human semaphorin 6A-1 comprising:

- (a) the nucleotide sequence shown in SEQ ID NO:1,
- (b) a sequence corresponding to the nucleotide sequence shown in SEQ ID NO: 1 within the degeneration of the genetic code, or
- (c) a sequence which hybridizes with the sequences of (a) or/and (b) under stringent conditions with the proviso that it contains a nucleic acid coding for a binding domain of human semaphorin 6A-1 comprising:
- (d) the nucleotide sequence shown in SEQ ID NO:3,
- (e) a sequence corresponding to the nucleotide sequence shown in SEQ ID NO:3 within the degeneration of the genetic code, or
- (f) a sequence which hybridizes with the sequences of (d) or/and (e) under stringent conditions.

23. (Previously presented) A nucleic acid encoding for human semaphorin 6A-1 as recited in Claim 22, wherein the nucleic acid sequence has a sequence homology to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3 of greater than about 80%.

24. (Previously presented) A nucleic acid comprising a sequence which hybridizes under stringent conditions to the nucleic acid sequence of Claim 23.

25. (Previously presented) A nucleic acid comprising a nucleic acid which encodes a protein having a semaphorin domain and hybridizes under stringent conditions to sequence SEQ ID NO:1 or SEQ ID NO:3 of Claim 22.

26. (Previously presented) A protein comprising a protein encoded by SEQ ID NO:1.

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27. (Previously presented) The protein of Claim 26, further comprising a substitution thereto, a deletion thereof or an addition thereto of single amino acids or short amino acid sections.

28. (Previously presented) The protein of Claim 27, wherein the protein is capable of binding to a member of the Ena/VASP family of proteins.

29. (Previously presented) A protein comprising a protein encoded by SEQ ID NO:3.

30. (Previously presented) The protein of Claim 29, further comprising a substitution thereto, a deletion thereof or an addition thereto of single amino acids or short amino acid sections.

31. (Previously presented) The protein of Claim 30, wherein the protein is capable of binding to a member of the Ena/VASP family of proteins.

32. (Previously presented) A protein comprising the amino acid sequence of SEQ ID NO:2.

33. (Previously presented) A protein comprising the amino acid sequence of SEQ ID NO:4.

34. (Previously presented) A protein comprising a protein encoded by the nucleic acid sequences of Claim 22.

35. (Previously presented) An antibody that binds to the protein of Claim 32.

36. (Previously presented) An antibody that binds to the protein of Claim 33.

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37. (Previously presented) An antibody that binds to the protein of Claim 34.

38. (Previously presented) A composition comprising the protein of Claim 32 and a pharmaceutically acceptable carrier.

39. (Previously presented) A composition comprising the protein of Claim 33 and a pharmaceutically acceptable carrier.

40. (Previously presented) A composition comprising the protein of Claim 34 and a pharmaceutically acceptable carrier.

41. (Previously presented) A composition comprising the nucleic acid of Claim 22 and a pharmaceutically acceptable carrier.

42. (Previously presented) A composition comprising the nucleic acid of Claim 23 and a pharmaceutically acceptable carrier.

43. (Previously presented) A composition comprising the nucleic acid of Claim 24 and a pharmaceutically acceptable carrier.

44. (Previously presented) A recombinant vector comprising at least one copy of a nucleic acid sequence according to Claim 22.

45. (Previously presented) A recombinant vector comprising at least one copy of a nucleic acid sequence according to Claim 23.

46. (Previously presented) A recombinant vector according to Claim 44 wherein the vector is a eukaryotic vector.

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47. (Previously presented) A recombinant vector according to Claim 45, wherein the vector is a eukaryotic vector.

48. (Previously presented) A cell transformed with the recombinant vector of Claim 44.

49. (Previously presented) A cell transformed with the recombinant vector of Claim 45.

50. (Previously presented) A method comprising administration of the protein of Claim 26 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.

51. (Previously presented) A method comprising administration of the protein of Claim 29 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.

52. (Previously presented) A method comprising administration of the protein of Claim 34 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.

53. (Previously presented) A method comprising administration of the nucleic acid of Claim 22 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.

54. (Previously presented) A method comprising administration of the nucleic acid of Claim 23 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.

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55. (Previously presented) A method comprising administration of the nucleic acid of Claim 24 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.

56. (Previously presented) A method comprising administration of the nucleic acid of Claim 25 to an animal or a human in an amount effective to modulate differentiation, apoptosis, cytoskeletal stabilization, plasticity or neurite growth.